A

CATALOGUE

OF

ZOOLOGICAL SUPPLIES

FOR SALE

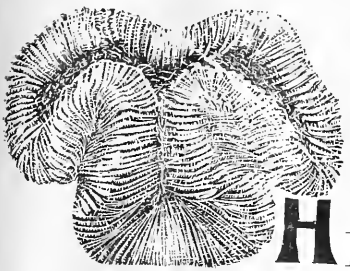
BY

C. J. MAYNARD

WEST NEWTON MASS.

1898

INTRODUCTORY.



THE CATALOGUE now issued, gives the material which we have in stock. Most of this is newly gathered: all of the sponges, corals, gorgonias, echinoderms, etc., having been collected by Mr. Maynard in the Bahamas, last spring. We are also constantly adding other material from the United States, hence all of the species used for illustrative and synoptical series for schools and museums, are animals which are more or less familiar to everyone, thus are better adapted for the use of American students than are foreign specimens. All of the specimens are in excellent condition, having been prepared by the most modern methods known to science.

The species advertised have been selected with great care by Mr. Maynard as a typical series for school and museum use.

Each object is correctly identified and labeled with both English and Latin names, locality and date of collection.

TERMS.

The prices given are placed as low as possible, hence must be regarded as net.

Unless special arrangement is made, all bills must be paid within thirty days after receipt of goods. Parties unknown to us must forward cash with order, or orders may be sent C. O. D.

Former patrons will please note the recent change in the post office address, but my place of business remains as before, and visitors to the labaratory should leave the cars on the Boston and Albany R. R. at Newtonville. Take Walnut St., which crosses the R. R. west of the station, pass northwest to Crafts St, thence to my place, making it all about a fifteen minutes' walk.

All checks, money orders etc., should be made payable to

C. J. MAYNARD, 447 CRAFTS ST., WEST NEWTON, MASS.

C. J. Maynard, West Newton, Mass.

CATALOGUE.

PROVINCE I. First Animals. Protozoa.

1 Model of Amoeba (Proteus) enlarged about 200 diameters, showing false feet (pseudopoda) contracting vesicle, muscles, food balls etc., illustrating one of the lowest forms of animal life, with no fixed locomotive organs, mouth, nor anal opening. .50.

2 Model of Slipper Infusoria (Paramaeceum) enlarged about 300 diameters. Shows in addition to the internal organs given in the Amoeba, rudimentary locomotive organs in the form of cilia, and a fixed mouth and anal opening, .50.

3 Model of Bell Infusoria (Vorticella) enlarged about 200 diameters. Illustrates one of the first evidences of fertilization. One bell is seen penetrating another. .50.

4 Foraminiferal sand, Bahamas, in vial. .10.

5 Model of Foraminifera (Orbiculina adunca) enlarged about 10 diameters, showing sculpture etc. .50.

PROVINCE II. Sponges, Poriferae.

Horny Sponges.

6 Sponge cut in section, mounted on cardboard and lettered to show water system and cilia cells, .10.

7 Same, unmounted and unlettered, forming hand specimens for school use, .05.

8 Alchoholic specimens cut in sections, showing flesh, .25.

9 Sections of sponges with dried flesh, .15.

10 Sponge on rock, showing method of growth, $1.00.

Species of Horny Sponges.

11 Hollow-fibered Sponge, Dendrospongia crassa, Hyatt. Grows in irregular masses. Dark green in life. Remarkable in having a coarse, net-like skeleton with hollow fibers; when living shrink upon being touched, .25.

12 Tube Sponge, Verongia fistularis Pflan. Allen's Harbor, Bahamas. Fig. 1. Tubular in form, bright orange yellow in life, drying pitchy black. Depth of water 25 ft. In many specimens the common orifice is partly closed by a membrane which is shown in the cut, made from a dried specimen. Size from 6 in. long by 2 in diameter, to 14 by 3. Skeleton, very hard. Illustrates sponges with single orifice, also budding, as most specimens have young attached. Recommended for school use.

Two or more tubes attached to stones, with closing membrane and young. $2.00.

Several tubes with closing membrane and young, $1.00.
Two or three tubes, with one membrane, .50.
Single tubes, .35. Skeletons of single tubes, .25.

13 Filamentous Sponge, Verongia insularis D. & M. Grows in flattened masses with an inclination to form a tubular structure, but the top of the sponge terminates in filaments, of a greater or less length Color, living, bright orange yellow, drying pitchy black. Occurs in shallow water. Size, small. .15

14 Rope Sponge, Verongia hirsuta Hyatt. Nassau, Bahamas. Form, rope like, often a single strand, but sometimes branched, varying from a few inches to 2 ft. Color, living, purplish or blueish, with the membrane that surrounds the orifices malachite green. Depth of water, 25 ft. An excellent species to illustrate the rope-like structure which some species assume. Specimen on rock, $1.00

Branching specimen, .50. Single specimen, .25. Young, .25

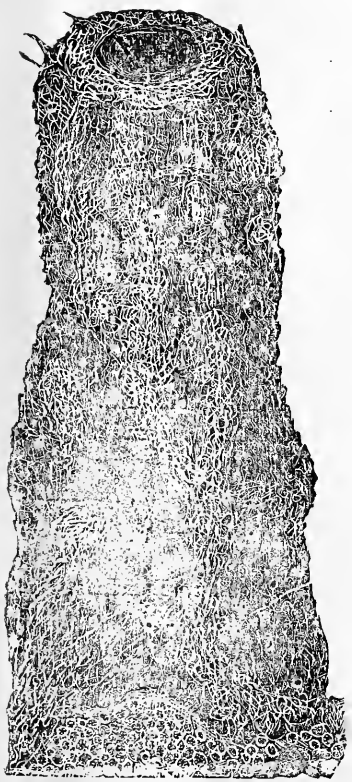
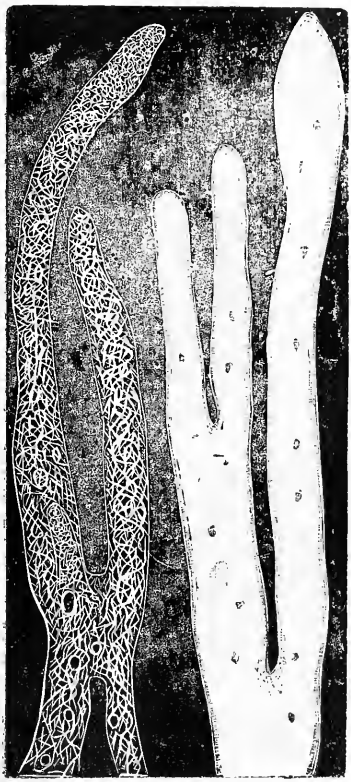


Fig. 1 Tube Sponge.



A B

Fig. 2 A, Branching Sponge B, Cord Sponge.

15 Golden Sponge, Aplysina aurea Hyatt. Nassau, Bahamas. Form, inclined to be tubular. Color, in life, bright golden yellow, drying black. Depth of water, 10 to 25 ft. Specimens when dried show the hardest and most rock-like structure of all the horny sponges, .25 to .50.

16 Giant Cup Sponge, Aplysina gigantea Hyatt, Nassau, Bahamas. Color, living, olive green. Depth of water, 25 ft. A rare species in collections. Adult specimens are cup-like, younger, disk or plate shaped. Sections, .25.

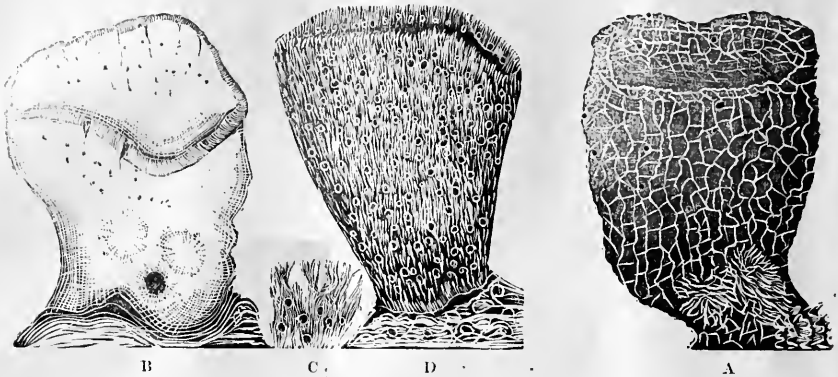


Fig. 3, Cup Sponges. A, Giant Cup; B, Gray Cup: D, Green Cup; (all about one third life size) C, part of D life size.

17 Pipe Sponge, Spongia tubulifera Lam, Nassau, Bahamas. Black in life and when dried. Depth of water, 4 to 6 ft.: the skeleton bleaches very white. This is the best species to illlustrate the growth of sponges for schools. With animal matter, .50; skeleton, .25.

18 Violet Sponge, Spongia discus D. & M. Nassau, Bahamas. Color, living, orange, changing to violet when drying, then to blackish. Depth of water, 4 to 10 ft. Specimen on rock $1.00; detached specimens .25 to .50; skeletons, .25.

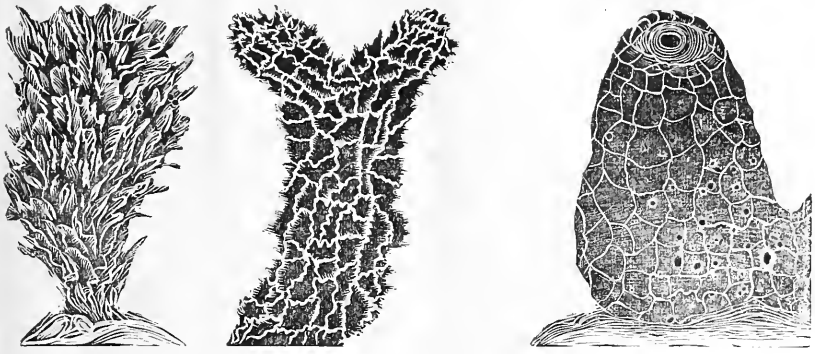
19 Grass Sponge, Spongia graminea Hyatt. Nassau, Bahamas. Color, black in life and when dried. Depth of water, 10 to 25 ft.: form, an elongated mound. Specimens, .25 to .50. Skeletons, .25.

20 Reef Sponge, Spongia dura Hyatt. Nassau, Bahamas. A small species, black in color, growing in shallow water: .05 to .25

21 Net Sponge, Stelospongos cribriformis Hyatt. Nassau, Bahamas. Olive green in life, drying darker. Depth of water, 5 to 25 ft. Occurs in irregular masses with mound-like openings which often have a closing membrane. Fig. 4, C. A good example of a sponge with a coarse skeleton for school use. Specimen on rock, $1.00. Detatched specimens from .15 to $1.00 Skeletons, .25.

22 Loggerhead Sponge, Hircinia acuta D. & M. Nassau, Bahamas. Grows in spherical heads in from 5 to 25 ft of water. Color, gray in life much

as in dried specimens. Size, varying from a few inches to 2 or 3 ft in diameter. Specimens 1 ft in di., $1.00; 10 inches, .50; smaller, .25. Skeletons, .25. Fig. 5, A.



A B C

Fig. 4. A, Palm Sponge; B, Crimson Sponge; C, Net Sponge.

23 Fringing Sponge, Hircinia marginalis Hyatt. Nassau, Bahamas. Gray in life and when dry. Grows on rocks in from 1 to 10 ft. of water. Form, irregular. On rock $1.00; others .10 to .50.

24 Black Spiny Sponge, Hercinia atrata Mayn. Black in color, both living and dry. Lives partly embedded in sand on shallow banks. Nassau and Eleuthera.

25 Brown Spiny Sponge, Hircinia fulva Mayn. Brown in color, drying darker. On shallow mud banks. Nassau.

26 Cord Sponge, Funiculea purpura Hyatt. Nassau, Bahamas. Grows in long cord-like filaments, usually upon gorgonias or other sponges. Color, living, pale purple, drying lighter. In combination with gorgonias and other sponges, .50; other specimens, .25.

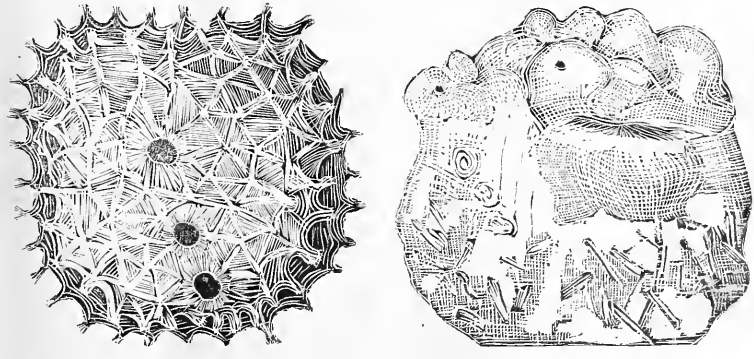


Fig. 5. A, Loggerhead Sponge; B, Scarlet Sponge.

Spiculigenous Sponges.

27 Alcoholic specimens, cut in sections, to show spicules in place. .25.

28 Sponge attached to rock, $1.00.

29 Finger Sponge, Tuba vaginalis Smitz. Allen's Harbor, Bahamas Greenish gray, drying about the same color. Depth of water 10 to 25 ft. Grows in beautiful clusters, each branch of which is tubular. Fig. 7, upper fig. life size; lower, a cluster reduced. Large, fine specimen attached to a rock. $1.50; large specimen unattached, $1.00; other specimens from .25 to .50.

30 Yellow Cup Sponge, Tuba plicafera Smitz. Nassau, Bahamas. Pinkish yellow, living, drying pale yellow. Depth of water, 25 ft. Cup-like with corrugated sides. Large, fine specimen, $1.00; smaller, .50; representative specimen, .25.

Fig. 7. Finger Sponge.

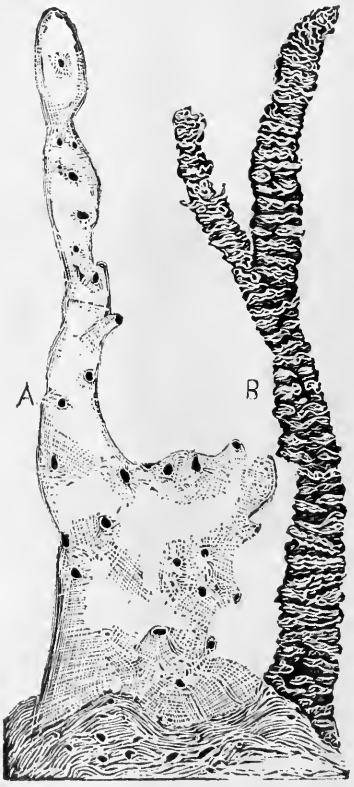


Fig. 8 A, Purple Sponge: B. Red Sponge.

31 Dwarf Tube Sponge, Tubula bullata. Nassau, Bahamas. Yellowish in life, drying about the same. Depth of water, 25 ft. Grows in elongated masses from which emerge small elevated tubes. Usually grows upon other sponges. Specimen on other sponge, .50; representative specimens, .25.

32 Green Cup Sponge, Amphimedon viridis D. & M. Allen's Harbor, Bahamas. Fig. 3, C and D. Depth of water, 25 ft. Greenish-gray, drying paler. Grows in detatched cups from 5 to 12 inches in height. A good species to show cup form for schools. Specimens attached to rock, $1.00: detatched cups, .25.

33 Crimson Branching Sponge, Hyetios musciformis D. & M. Allen's Harbor, Bahamas. Depth of water, 25 ft. Grows in upright branching clusters, 3 to 12 in. long. Fig. 4, B. Specimens, .50.

34 Coral Sponge, Pandaros corallinus. Allen's Harbor, Bahamas. Depth of water, 25 ft. Coral red, drying paler. Grows usually reclining in branching, anastomosing clusters, often woven together. Fig. 7, B. Representative specimens, .50.

35 Branching Sponge, Chalinula oculata. Portland Harbor, Me. Depth of water, 2 to 25 ft. Pale yellow, drying lighter. Grows usually in upright branching, anastomosing clusters, 5 to 14 in. high. Fig. 2, A. Specimens from .25 to $1.00; branch, for school use, .05.

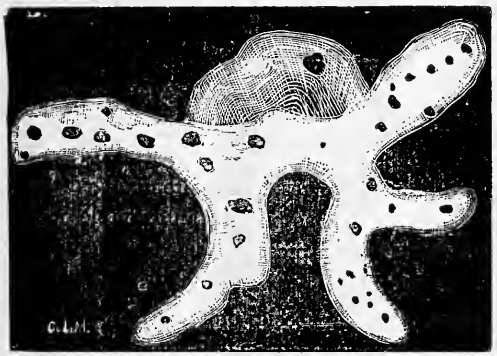


Fig. 8 Creeping Sponge.

36 Creeping Sponge, Smitzia aulopora. Yellow, drying paler. Depth of water, 25 ft. Grows in rounded, prostrate, anastomosing branches. Size, quite frequently very large and thick. Yellow, drying paler. Fig. 8. Specimens 11-2 by 2 ft., $4.00. 1 by 1, $2.00 smaller, .50 to $1.00; sections .50.

37 Gray Cup Sponge, Cribrochalina infundibulum D. & M. Nassau, Bahamas. Depth of water, 25 ft. Purplish gray, drying a little paler. Solitary Cups or Disks, 4 to 10 inches in di. Fig. 3, B. Fine specimens, $1.00; smaller, .40 to .75; sections, .25.

38 Purple Sponge, Pachychalina rubens, Schm. Nassau, Bahamas. Depth of water, 4 to 25 ft. Purplish lake, in life and when dry. Grows in elongated clusters from a few inches to a foot or more long. Attached to rock $1.00; other specimens from .15 to .25.

39 Scarlet Sponge, Amphismedon variabilis D. & M. Nassau, Bahamas. Grows between tide marks. Scarlet, drying paler. .10 to .15.

40 Gray Sponge, Nassau. Bahamas. Grows in irregular, leathery masses: excellent to show spicules. Specimens, .25: sections, .05.

41 Orange Sponge. Suberites tuberculatus. Nassau, Bahamas. Grows in shallow water, often exposed by the falling tide, adhering to coral-lines etc. Orange, drying duller. A peculiar species, with little or no fibrous matter. Specimens, from .10 to .25: sections for the use of schools, .05.

42 Volcano Sponge, Geodia. Dark brown, drying about the same color. This is a remarkably fine species for school use as the incurrent and excurrent orifices are very plainly indicated. Specimens, 18 inches in diameter, $5.00: 12 inches in diameter, $3.00: 8 to 10 inches, $1.00: 4 to 8 inches, .50: smaller, .25.

CASTS OF LIVING SPONGES.

After many experiments, I have at last succeeded in making casts of living sponges: colored with life-like exactness. So nearly do the reproductions resemble the living sponges that it is almost impossible to detect the difference between the original and the cast. Thus for the first time, Museums and Collectors will be enabled to place upon their shelves specimens which represent some of the varied sponges of tropical waters, in all the minute details of form and vividness of color which are presented by these singular forms of animal life when in their native element. The importance of this discovery will be fully appreciated by those who have seen the tropical sponges when living and who have endeavored to preserve them with their evanescent forms and colors in something like the natural condition.

The difference between living sponges and the distorted and faded specimens, which from necessity we have been obliged to study, is so great, that after twenty-five years' experience with sponges, I am often obliged to dry a living sponge before I am able to recognize it as perhaps an example of a species with which I was perfectly familiar when preserved.

SPECIES.

We have the casts of the following species of sponges:

43	Hollow-fibered Sponge. Dark greenish.	.50.
44	Filamentos Sponge. Ochraceous orange.	.75.
45	Golden Sponge. Greenish orange.	$1.00.
46	Reef Sponge. Black.	.50.
47	Grass Sponge. Black.	.50.
48	Loggerhead Sponge. Gray.	.50.
49	Fringing Sponge. Greenish Gray [buried.]	.50.
50	Black Spiny Sponge. Black when exposed, whitish when	.50.
51	Brown Spiny Sponge. Reddish Brown.	.50.
52	Scarlet Sponge. Bright scarlet.	.75.

53 Orange Sponge. Bright Orange. .50.

54 Black Incrusting Sponge. Terpios niger. Black. .50.

PROVINCE III. HYDROID POLYPS

55 Tubularia. Tube Polyps, in vials. .15.

56 Campanularia. Bell Polyps, in vials. .15.

57 Stinging Coral, Millepora alcicornis Linn. This is a form of polyp in which the hydra stage deposits limy matter, much as do the true coral polyps. Fig. 9, C. Large, fine specimens $1.00 to $5.00; representative specimens, .25 to .50; hand specimens for school use. .10.

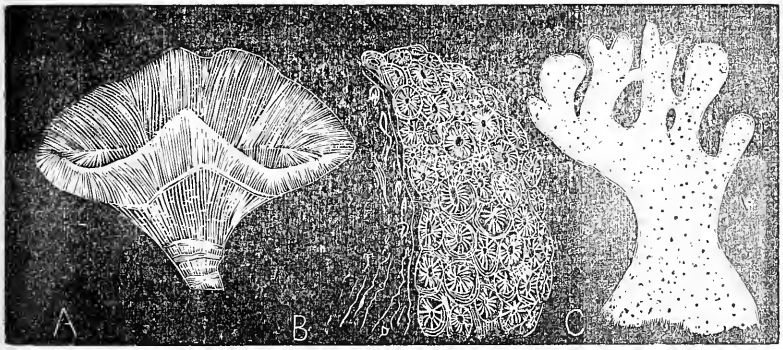


Fig. 9. A, Rose Coral; B, Rock Gorgonia; C, Stinging Coral.

Sea Anemones.

58 Common Sea Anemone, Metridium marginatum. N. E. Formalin specimens, each in a separate jar, .25; specimens without formalin, or jar, .10; living specimens, which can be sent a three days' journey in sea water, in cool weather, and which are especially recommended for school use, .10; sea water, .10 per gal.; cans, .25. Orders for living anenomes should be given one week in advance.

59 Scarlet Anemone A beautiful tropical species, fully expanded with a double row of tentacles only. This is one of the best species for study on account of the small number of tentacles which are so large that the terminal orifices can be readily seen. The mouth, stomach, and mesenteries, etc. can be easily seen in these large, finely preserved specimens. Large specimens in separate jars, $1.00; smaller, .50; smaller size, 35; without jars, 25 per cent less.

60 Sand Anemone. A tropical species which lives on shifting sand bars. Has the tentacles modified to suit the conditions under which the animal lives. In jar, .75; without jar, .50.

Corals.

REEF-BUILDING CORAL. These species occur on reefs in from two to fifty ft. of water: polyp cells continuous: increase by constant growth along the margins and by division. (All corals propagate by eggs in addition to some

other method). Color, living, yellow, but all specimens, unless otherwise stated, are bleached white by a peculiar process, which entirely removes the polyps without injury to the most delicate portion of the cells. Unless so stated, all corals are from Nassau, Bahamas

61 Head Coral, Meandrina strigosa. Form, spherical heads: the cell divisions are high. Largest size, 6 ft. in di Pieces 3 in. in di., .25: 5 in., .05; above this size, .05 per square inch.

62 Plate Coral, Menandrina clivosa Form, flattened and plate-like, sometimes sending out cone-like projections. Largest size, 4 ft. in di. Fig. 10, A. Section for school use, .10: pieces 2 in. in di., .25; 5 in., .50; larger, .05 per square inch.

63 Brain Coral, Diploria cerebriformis. Spherical heads, with cell divisions grooved on top. Fig. 11. Largest size, 2 ft. in di. Pieces 3 in. in di., .25; 5 in. in di., .50; above this size, .10 per square inch.

Lagoon Corals. Occur in lagoons in from 1 to 20 ft. of water. Color, varied. Increase by division or buds; rarely by both methods.

64 Little Star Coral, Orbicella annularis. Grows in flattened heads, often 2 ft. in di. Color, yellow. Increase by buds. Pieces 3 in. in di., .15; 5 in. .25; larger, .05 per square inch.

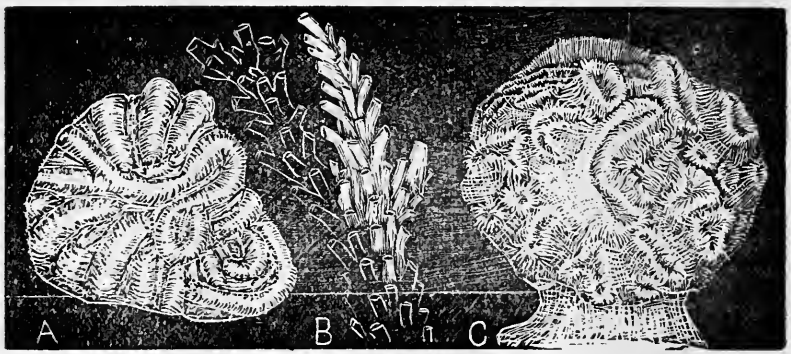


Fig. 10 A, Plate Coral; B, Branching Coral; C, Ocelated Coral.

65 Large Star Coral, Orbicella cavernosa. Grows in flattened heads, with large polyp cells; (fig. 13, A) size often 2 ft in di. Color, green, often retained after cleaning. Small piece for school use, to show this peculiar method of budding, .10; 3 square in., .50; larger sizes, .12 per square inch.

66 Branching Coral, Madrepora prolifera. Grows in many upright, anastomosing branches, mostly in lagoons, but sometimes on the reefs; about 18 in. high. Fig. 10, B. Color, golden yellow. Terminations, for school use, to show budding of branches, .05: large branch, .25; each additional branch, .25: for specimens with natural color add 2 per cent.

67 Spike Coral, Madrepora cervicornis. Grows always in lagoons in beds, in upright, anastomosing branches, often ten ft. high. Color, yellow. Terminations, .05 : larger, .25 to $1.00.

68 Rosette Coral, Madrepora sp ? [NOTE : the specific name of this and of all other species not yet determined will be sent out with the specimens]. A beautiful species found growing on the barrier reef off Andros Island. The large branches terminate in a rosette of buds. Length, 18 in. Color, greenish yellow. Terminations, showing rosette of buds, .10 : single branches, .25 : each additional branch, .25 : for specimens of the natural color, add 20 per cent

69 Fan Coral, Madrepora palmata. Fan-shaped when found in lagoons, but assumes an elongated form when it occurs on the reefs. Golden Increase by buds. Sections, .10 ; fans, .25 to .50 ; larger specimens, .05 per square inch : for natural color add 20 per cent.

70 Pineapple Coral, Porites astraeoides Maximum size, 18 in. in di. Greenish Yellow. Polyp cells, very small, increase by division, as is also true of all members of the genus. Excellent for school use to show the small form of cell. Pieces 2 in. in di., .10 ; 3 in., .25 ; larger, .03 per square inch.

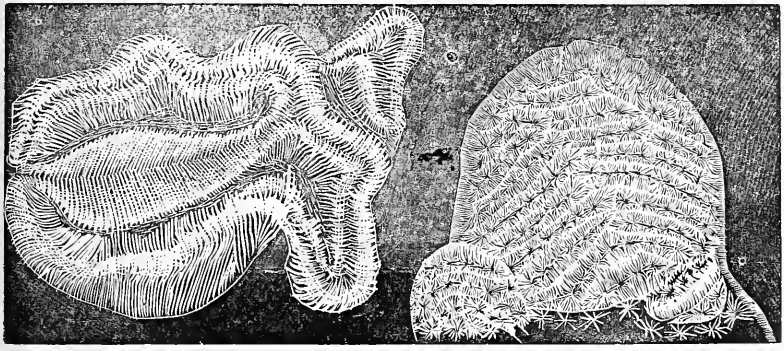


Fig. 11. Brain Coral Fig. 12 Propeller Coral.

71 Forking Coral, Porites furcata. Grows in branching clusters, never much over 12 inches high. Color, yellow. Fig. 14, B. Single branches for school use, .05 ; two branches, .25 ; each additional branch, .10.

72 Lobed Coral, Porites clavatia. Grows in lobe-like projections, 1 to 4 in. high : purplish yellow. Single lobes, .15, each additional, .10.

73 Horn Coral, Porites sp ? Grows in tapering, horn-like clusters, 2 to 4 in. high. Very pale yellow. Single horns, .25 ; each additional horn, .25.

74 Purple Coral, Porites sp ? Grows in flattened heads. Bright purple in color. Representative specimens, .15.

75 Shining Coral, Porites sp ? Grows in small forking branches, bright

shining purple in color. Representative specimens, .25.

76 Propeller Coral, Agaricia agaricites. Grows in irregular masses, which send out blade-like projections, that are inclined to radiate from a common center. Fig. 12. Increase by buds. Greenish yellow in color. Small pieces, .10; pieces with two blades, .25; 4 blades, .50; each additional blade, .20.

77 Globe Coral, Favia ananas. Grows in small, round heads; yellow in color. Fig. 14, A. Increase by division. Specimens less than 2 in. in di. .15; larger, .25.

78 Rolling Coral, Sideraster globosa. Occurs on grassy bottom, rolling freely about, often nearly or quite spherical, with living polyps covering the entire surface; yellow in color. Fig. 14, D. Increase by division. Perfect specimens less than 2 in. in di. .25; larger, .35 to $1.00; imperfect, .10 to .50.

79 Sideraster galaxea, Gray Coral. Remarkable as being the only West

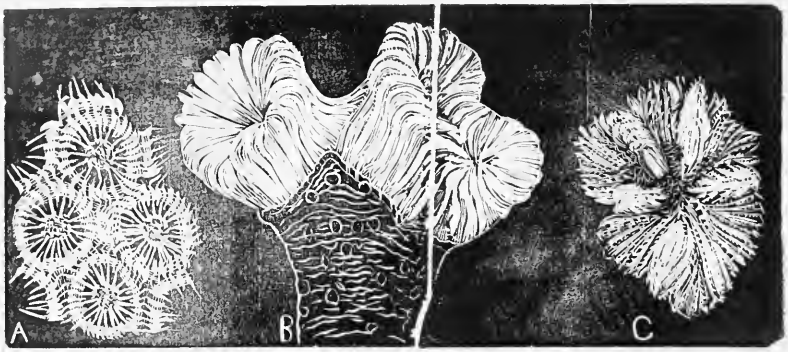


Fig. 13. A, Large Star Coral; B, Tooth Coral; C, Lancet Coral.

Indian coral that habitually grows where it is exposed by the falling tide. Purplish ash. Increase by both buds and division. Specimens from .10 to .20.

80 Brown Coral, Sideraster siderea. Often grows in large flattened heads, brownish purple in color. Specimens containing 4 square in., .40; larger, .05 per in.

81 Rose Coral, Manicina areolata. When young, attached to a base, ultimately breaking off and lying free upon the bottom. Usually oval in form. (Fig 9, A) but sometimes assumes singular forms, one of which forms the vignette in the introduction. Yellowish or brownish. There is no cell divisions in this species. Small, for schools, .05; 2 in long, .10; 3, 25; 4, .50.

82 Ocellated Coral, Dichocoenia pulcherrima. Grows in rounded heads with prominent cells of varying sizes and forms. Yellow in color. Fig. 10, C. Heads less than 2 inches in diameter, .30; larger, .10 per square inch.

83 Elliptical Celled Coral, Dichocoenia elliptica. Similar to the last; cells, more regular in form and wider apart; prices the same.

84 Pillar Coral, Mussa angulosa Grows in isolated pillers, often 10 in. high, terminating in a single polyp cell, from 1 to 3 in. in di; green in color Increase by division. Rare. Each pillar $100. We have a beautiful group of 9 pillers in combination with a Loggerhead and a Gray Cup Sponge, price, $8.00.

85 Lancet Coral, Isophyllia strigosa. This and other members of the genus are beautiful species, growing in small heads, green in color, which is often retained after cleaning. Less than 2 in. in di, .15; larger, .10 per square inch. Fig 13, C.

86 Green Coral, Isophyllia dipsacea. Resembles 85, but the cells are smaller and more distinct. Prices the same.

87 Grooved Lancet Coral, Isophyilla sp? Similar to 86, but the cells are larger and the interspaces between them are grooved; prices same as in 85.

88 Deep Celled Coral, Isophyllia sp? Differs from all other members of the genus in having the cells deeper, wider and more or less connected together. Prices the same as in 85.

89 Lemarck's Coral, Mycetophyllia lemarckii, Polyp cells and general form quite similar to 85, but the bottoms of the cells are covered with a thin floor of limy matter, and the lancet-like points are usually hollow. Rare. Representative specimens, .75.

Rock Gorgonias.

90 White Rock Gorgonia, Palythoa mamillosa. Occurs closely adhereing to rocks, etc. Yellowish white. Fig. 9, B. Price, .05 per square inch.

Gorgonias.

Gorgonias without horny axle. Made up mainly of limy spicules without a horny axle. All the Gorgonias occur in shallow water, and all listed are from the Bahamas; more direct localities will accompany the specimens.

91 Crimson Gorgonia, Briarea asbestina. Found growing in branching clusters, sometimes a foot high. Crimson lake, drying a little paler. Portions of branch for school use, .05; entire branch, .10; each additional branch. .10.

Gorgonias with horny axle. Made up of an outer coating of limy matter; surrounding a horny center. Gorgonias of this class grow from a single base, but divide into a greater or less number of branches. The colors are often brilliant and are usually retained when dry.

92 Scaly Gorgonia, Muricea lima. Many branches, short, 10 in. Orange. Fig. 16, C. Sections for school use to show spicules, .05. Whole specimens, .25 to .50.

93 Ehrenberg's Gorgonia, Eunicea ehrenbergii. The branches are rather plentiful, 6 to 10 in. Fig. 15, D. Greenish, drying darker. Sections for school use to show prominent polyp cells, .05; entire, .15 to .25.

94 Esper's Gorgonia, Eunicea esperi. Polyp cells larger than in 93. Greenish brown, drying darker. Rare. .25 to .50.

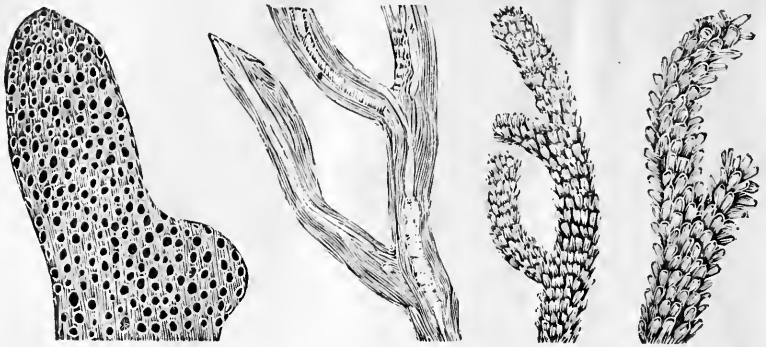
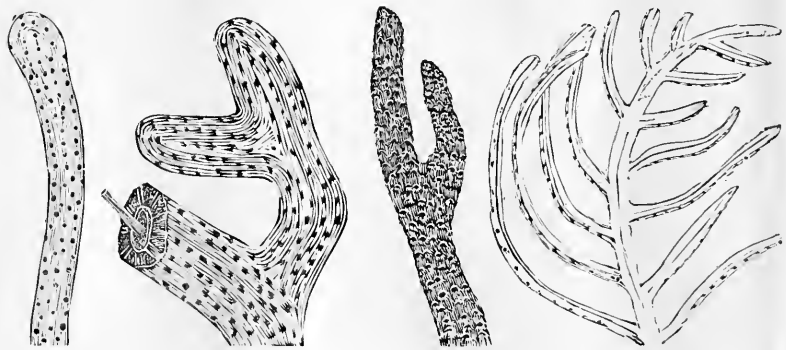


Fig. 15. Gorgonias; A, Crimson; B, Purple; C, Scaley; D, Ehrenberg's.

95 Stromeyer's Gorgonia, Eunicea stromeyeri. Few branches, stout: polyp cells rather prominent. Dark brown. .25 to .35.

96 Black Gorgonia, Eunicea distans. Few branches: not as stout as last: polyp cells, small. Black. .25 to .35.



A B C D

Ffg. 16. Gorgonias: A, Coarse; B, Brown; C, Yellow; D, Flat Feather.

97 Ragged Gorgonia. Eunicea laciniata. Two or three branches only: stout. Brown. 6 in. to 2 ft. .25 to $1.00.

98 Slaty Gorgonia. . Eunicea hirta. Many branches; small, with very oval cells. Pale slaty brown. 6 in. to 1 ft. Rather rare. .35 to .50.

99 Brown Gorgonia, Plexaura dichitomia. Branches, few, large. 6 to 12 in. Pale yellowish brown. Section of branches to show large polyp cells, for school use, .05. Entire .15 to .35. Fig. 16, A.

100 Coarse Gorgonia, Plexaura crassa. Few branches, long, slender: brown; cells large. Fig. 16, A.

101 Slender Brown Gorgonia, Plexaura sp? Longer and more slender than 100. .25 to .50.

102 Flexible Gorgonia, Plexaura flexuosa. Few branches, slender, long (1 to 2 ft,) tapering, pale violet purple; cells, small. .25 to .85.

103 Punctured Gorgonia, Plexaura antipathea. Similar to 102, but the cells are much larger. .25 to $1.00.

104 Orange Gorgonia, Plexaura homomalla. Many branches, 6 to 12 in.: bright orange, drying dead black; cells very small. .25 to .35.

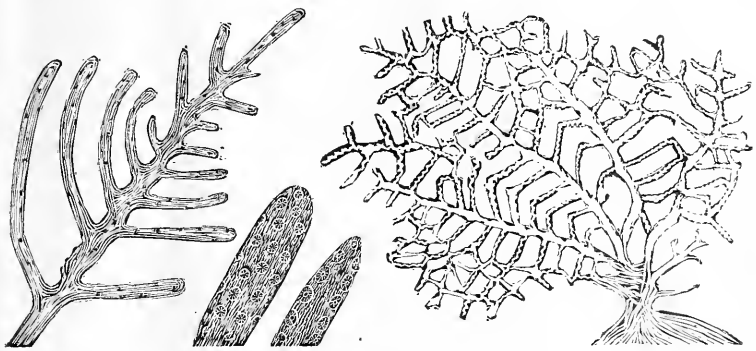
105 Purple Lake Gorgonia, Plexaura purpura. Branches few, 6 to 10 in.; bright purple lake, .25 to .35.

106 Flexible Brown Gorgonia, Plexaura sp? Many branches, long, (6 to 18 in.) flexible, pale reddish brown.

107 Yellow Gorgonia, Plexaura flavida. Similar to 105, but yellowish orange, .25 to .35.

108 Citron Gorgonia, Plexaura citrina. Similar to 105, but bright orange. .25 to .35.

109 Purple Gorgonia, Xiphigorgia anceps. Branches many, short, 5 to 12 in., triangular: polyp cells in a continuous line. Fig. 15, B. Sections for school use, .05; entire, 25 to .50.



A B C D

Fig. 17. A, Rosy Feather; B, enlarged portion of same; D, Purple Fan; C, enlarged portion of same.

110 Yellow and Purple Gorgonia, Xiphigorgia americana. Smaller than 109, 4 to 6 in.; branches, flat; yellow, spotted with purple. .25.

111 Rosy Sea Feather, Leptogorgia rosea. Branches, feather-like, with polyp cells surrounding the rounded pectinations; (Fig. 17, A & B) purplish rose. .25 to .35.

112 Dwarf Sea Feather, Leptigorgia sp? Smaller and paler than 111: exceedingly pretty and delicate in structure; rare: .35 to .50.

113 Flat Sea Feather, Pterogorgia pinnata. Size, never large, 12 to 18 in., pectinations flattened, with cells along edges only: (Fig. 16, D) pale purple. The polyps in the young are very large, and when the prepared specimens are placed in fresh water for an hour or two, the polyps regain much of their original size and form. Sections for school use to show polyps when expanded, .05; large specimens, .25 to .50.

114 Purple Sea Feather, Pterogorgia setosa. Large, 1 to 4 ft., a beautiful species, bright purple in color: .25 to $1.50.

115 Purple Sea Fan, Rhipidogorgia flabellum. Flat and fan-like, with anastomosing branches, varying from pale to bright purple: 6 to 18 in. All of the Sea Fans are beautiful and striking objects, much sought after by collectors. Fig. 17, C & D. Sections for school use, .05; entire, .10 to $1.00.

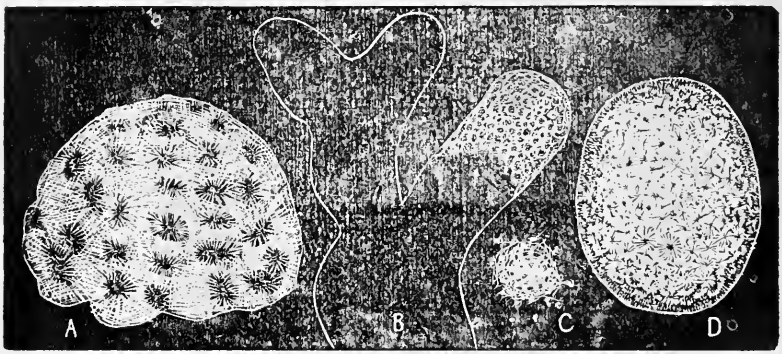


Fig. 14. A, Globe Coral: B Forking Coral: C, an enlarged cell of same: D, Rolling Coral

116 Yellow Sea Fan, Rhipidogorgia occatoria. Thicker than the last: bright yellow; prices same as for 115.

117 Creamy Sea Fan, Rhipidogorgia elegans. Creamy yellow, stained with purple in spots. Rare. .35 to $1.00.

Gorgonias with a Base and Denuded.

118 Gorgonias denuded of their outer liny covering, all species, .25.

We have in stock a very large number of Gorgonias, comprising most of the species listed, attached to the rock, coral, etc., to which they grew. These natural bases vary in size from a few square in. to pieces a foot or more across. These fragments of reef illustrate methods of Coral and Gorgonia growth perfectly, and no school nor museum should be without specimens of them. Prices from .50 to $5.00.

Star-fishes.

119 Common Star-fish, Asterias forbesii: Mass. Fig. 18, A. The star-fishes prepared by our new process can be used dry to show external characters, and then by placing in tepid water over night all of the internal organs can be seen as well, if not better, than in fresh specimens. All teachers who have used them prefer them to either fresh or alcoholic specimens. Less than 3 in. in di., ,03; between this and 5 in., .05; to 6 in., 08; 7 in., 15; 8 in., .35; larger, .75 to $1.00.

120 Giant Star-fish, Oreaster gigas, Bahamas. Shows the anal opening clearly, and should be in every school collection. Fig. 19, greatly reduced. About 6 in. in di. .25: larger .50 to $1.00.

121 Ten-rayed Star-fish, Maine. Fine specimens, .50 to .75.

122 Brittle Star-fish, Ophiopholis aculeata. Fig. 18. B. The digestive cavitity does not extend into the rays. .10. We have also a few Baha-

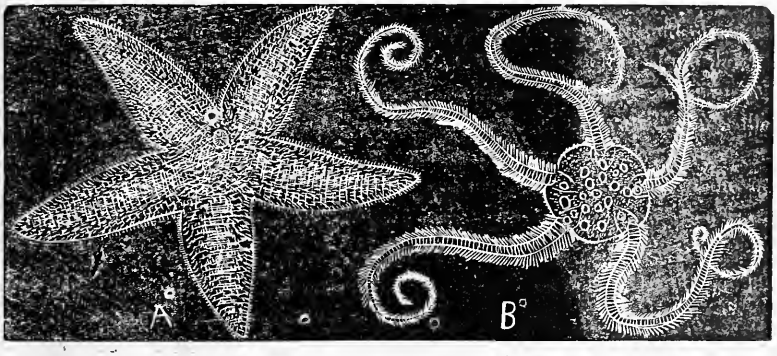


Fig. 18. A, Common Star-fish; B, Brittle Star-fish.

ma Serpent Star-fish, .10.

123 Crinoids, (fossil) small, .05; larger, .10 to .50.

Skeletons of Star-fish.

Stony skeleton of Common Star-fish, .50 to $1.00; of Giant Star. $2.00; portions of this species, to show spherical form of parts .10.

Sea Urchins.

For school use, we recommend our dried specimens of Sea Urchins, as those in alcohol seldom give satisfaction. Unless so stated, all are from the Bahamas.

124 Common Sea Urchin, Stronglyocentrotus drobachensis; Me., .10. We can furnish all urchins with and without spines.

125 White-spined Urchin. Hipponoe esculenta. Fig. 20. A good species for the use of schools. 5 to 4 in. in di., .10.

126 Club-spined Urchin, Cidaris tribuloides. In this singular species we find retained a primitive form of urchin. 2 to 4 in., .25.

127 Black-spined Urchin, Diadema setosum. Very fine denuded, to show the plates and anal opening opposite mouth; 2 to 4 in. in di., .15.

128 Oval Urchin, Echinometra subangularis. Fig. 22. Oval in form, but with mouth and anal opening opposite. .15.

129 Biscuit Urchin, Echinanthus rosacea. Fig. 23, 1-2 life size, 4 by 3 by 1 1-2. Oval, flattened, mouth central, anal opening at end. A beautiful deep seal brown in color. .20.

180 Heart Urchin. Amphidetus cordatus. England. Fig. 24. A sin-

Fig. 19. Giant Star-fish.

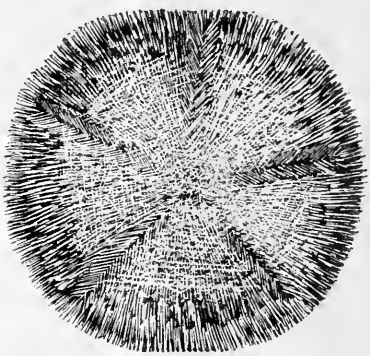


Fig. 20. White-spined Urchin.

ular species with the mouth and anal opening not central. .15.

131 Beaver Urchin, Meoma ventricosa. Fig. 25, 1-3 life size. 5 by 6 by 3. Mouth and anal opening near opposite ends. A very fine species, with short spines, seal brown in color. .05.

132 Cushion Urchin. Metalia pectoralis. Fig. 26, 1-3 life size. Mouth and anal opening at *opposite ends*. This is one of the largest and finest Urchins known to science, averaging 8 by 5 by 3. The color is yellowish white and the long, slender spines look like drawn glass. We have a limited number only of this beautiful urchin, as it is exceedingly difficult to procure, and is rare in collections. $2.00.

133 Key-hole Urchin, Mellita sexforis. Flat with 6 openings in the surface. Mouth and anal opening together below. .25.

PROVINCE IV. Worms. Vermes.

134 Hair Snake, Gordias, .05. 135 Earth Worm, .03
136 Leach, .05. 137 Marine Worm, .10.
138 Worm-case of sand, .10. 139 Worm-case of lime, .10.

PROVINCE V. Lamp Shells. Brachiopoda.

140 Fossil Lamp Shells, of several genera and species, .10 each.

PROVINCE VI. Soft-bodied Animals.

141 Moss Animals, (Polyzoa) representative species, alcoholic, or dry, .10.

142 Ascidians, representative species, in formalin, .10,

143 Boltenia dubia in formalin, .25.

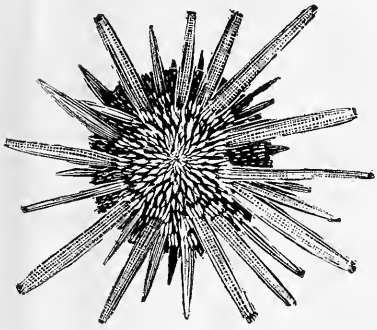


Fig. 21. Club Urchin.

Fig. 22. Oval Urchin.

144 Shelless Mollusks (Eolis) in formalin, .10.

Two-valved Shells: Pelecypoda.

145 Clam, with siphon extended, prepared dry, fastened to card-board for school use, .10.

Species of Two-valved Shells.

146 Oyster, Ostrea virginica, living or shell, .05. 147 Nail Shell, Anomia aculeata, .05. 148 Scallop, Pecten irradicans, .05. 149 File Shell, Lima scabra, .10 150 Wing Shell, Pinna muricata, .10, 151 Mussel, Mytilus edulis, .05. 152 Ark, arca imbricata, .05. Wave Shell, Astarte undata, .05. 154 Sculptured Clam, Lucina tigrina, .95. 155 Clustered Chama, Chama congregata, 10. 156 Northern Heart, Cardium islandicum.

.25. 157 Large Clam, Mactra solidissima, .10. 158 Sand Shell, Donax variabilis, .05. 159 Purple Clam, Asaphis deflorata, .10. 160 Animal in formalin, .10. 161 Sunset Shell, Telina radiata, .10. 162 Quahog, Venus

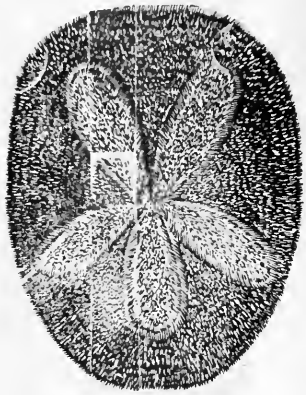


Fig. 23, Biscuit Urchin.

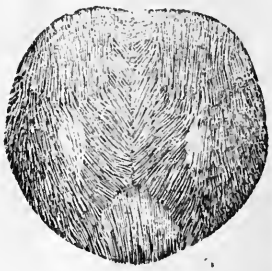


Fig. 24, Heart Urchin.

mercenaria, .05. 163 Clam, Mya arenaria, .05. 164 Date shell, Lithophagus antillarum, .10; in piece of coral, .25. 165 Razor Clam, Solen ensis, .05. in formalin, .25. 166 Fresh Water Clam, Unio, .05. 167 Globe Shell. Sphaerium similie, .05.

One-vaeved Shells. Gasteropoda.

Shells with limy operculum, with horny operculum, without operculum, and land shell, .05.

Shells cut in two sections to illustrate the three methods of growth: Conch, showing continuous method .50: Cameo, showing accumulative method, $1.00; Cowery, showing reconstructive method, .75.

Species of One-valved Shells.

We can furnish the following species of shells representing families in this group.

168 Bubble Shell, Bulla striata, .05. 169 Coffee Shell, Melampus coffeus, .05. 170 Lettered Olive, Oliva literata, .15. 171 Spotted Cone. Conus gladiator, .10. 172 Tulip Shell, Fasciolaria tulipa, .25. 173 Whelk. Buccinum undatum, .05. 174 Basket Snail, Nassa obsoleta, .05. 175 Dove Shell, Columbella mercatoria, 3 for .05. 176 Rock Snail, Purpura lapillas. .05. 177 Queen Cameo, Cassis cameo, .50. 178 Spotted Cowery, Cypraea

exanthema, .25. 279 Conch, Strombus gigas, (small) .10. 180 Creeping Shell, Cerithium minimum, .02. 180 Worm Shell, Vermetus, .10. 181 Tower Snail, Tectorius muricatus, .02. 182 Step Shell, Crepidula fornicata, .05. 183 Ocean Snail, Natica heros, .05. 184 Limpet, Acmaea testudinalis, .05. 185 Magpie Top, Lavona pica, .10. 186 Bleeding Tooth, Nerita peloronta, .05. 187 Key Hole Limpet, Fissurella barbadensis, .04. 188 Scale Shell, Acanthopleura picea, .08. 189 Varying Snail. Helix varians, .06. 190 Fresh Water Snail, Physa heterostropha, .06.

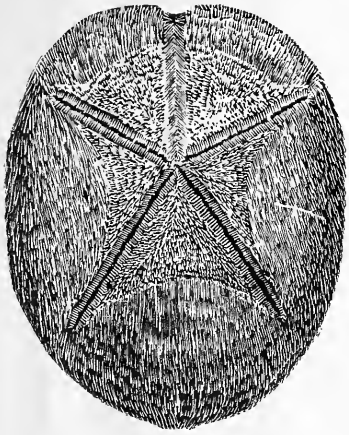


Fig. 25, Beaver Urchin.

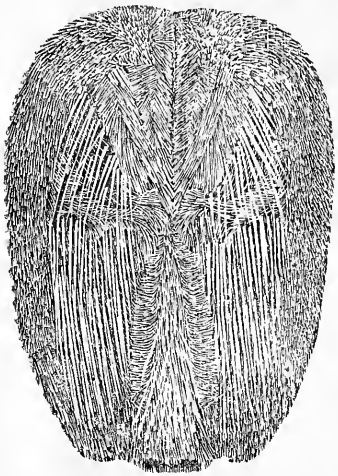


Fig. 26, Biscuit Urchin.

One-valved Shells in Formalin.

White-lipped Snail, finely expanded in formalin, showing all the parts clearly, .06 each, $5.00 per hundred. Just the thing for school use.

192 Animal of Tulip Shell removed from the shell, .25.

193 Ocean Snail, Natica heros, expanded, .10.

HEAD-FOOTED MOLLUSKS. CEPHALOPODA.

195 Chambered Nautilus, $2.50; cut in two sections, each section $2.00; both $3.50. 196 Fossil Scaphites, small, .10; larger, .15 to .50.

197 Squid in formalin; large, .25; smaller, from .05 to .15.

Octopus in formalin, large size, $8.00.

2nd size, $5.00.

3d size, $3.00.

Smaller, $1.00 and $2.00. Jars, extra.

Naked Mollusks.

198 Eolis small in formalin .10.

199 Alpysia, Bahamas, in formalin $1.00.

Jars extra.

PROVINCE VII. JOINTED ANIMALS. ANNULATA.

CRABS, ETC. CRUSTACEA.

All of our Crabs, etc., unless otherwise stated, are very finely mounted on ebonized wood, and the prices given are for these; we have, however, specimens of many of the species prepared with glycerine so that the joints are always flexible, excellent for school use, and these are half price. Specimens mounted on card-board are 2-3 the given price; unmounted, 1-2 price; these are perfect and ready to mount.

Our mounted Crabs are now prepared so that they will stand transportation, and we will always guarantee safe delivery. The Latin names of the species are omitted in the catalogue, but will accompany the specimens.

200 Lobsters, small, $1.00; larger $1.50 to $2.00; living, .15 per lb.

201 Common Crab, Mass., small, .20; larger, 50; living, .10.

202 Lady Crab, Mass., a beautiful species, .40.

203 Spider Crab, Mass. with slender legs, .35.

204 Blue Crab, a fine species with legs modified for swimming. Bahamas .20.

205 Purple Crab Bahamas, similar to the last but differs in color .75.

206 Sea Hermit, Mass. prepared in shell or living .10.

207 Mottled Sea Hermit, Bahamas, a beautiful species growing to a large size .50 to $1.00.

208 Land Hermit, Bahamas, small .10; larger .25 to .50.

209 Black Crab, Bahamas, land, of a variety of colors, from yellow to purple, beautifully marked .75.

210 White Crab, Bahamas, the largest of the West Indian land Crabs golden or yellowish white, $1.00.

211 Galden Crab, similar to 211, smaller and always purple, .25

212 Surf Crab, Bahamas, flat in form red and yellowish, in fine markings, .75.

214 Sand Crab, Bahamas, yellowish white with hairy claws, .50.

215 Mangrove Crab, Bahamas, beautifully marked with red, black and white, rare, $1.00.

216 Sand-flea, .03. 217 Shrimp, .03. 218 Sow-bug, .03. The last three are in formalin. 219 Horse-shoe Crab, moults, .10 to .25. 220 Barnacles in clusters, .05.

Spiders, Etc.

221 Spider, .03. 222 Scorpions, .20. 223 Centipedes, small, .05, from the Bahamas, large from .25 to $1.00. 224 Thousand-legs, .03.

Insects.

Prices for all unmounted Insects (which may be relaxed by placing on damp sand in a close tin box or pail for 12 hours) and cocoons etc., unless otherwise mentioned, are .03; mounted, .10.

Order I, LACE-WINGS. 225 Dragon-flies; larvae (formalin) pupa case. 226 Caddice-fly, larva, case. 227 Lace-wing Fly. 228 White Ants, wood galleried by them.

Order II, STRAIGHT-WINGS. 229 Cockroach. 230 Locust. 231 Grasshopper. 232 Crickets, also larvae of all.

Order III, BEETLES. 233 June Beetles. 234 Goldsmith. 235 Long-horns, wood bored by them. 236 Weevils, grain partly eaten by them. 237 Water Beetle. 238 Carrion Beetle.

Order IV, HALF-WINGS. 239 Squash Bugs. 240 Water Boat-man 241 Water Striders. 242 Cicada, pupa case.

Order V, TWO WINGS. 243 House Fly. 244 Robber Fly. 246 Flesh Fly, larva and pupa.

Order VI SCALY WINGS. 247 Butterfly, chrysalis. 248 Moth, cocoon, caterpillar in formalin, .05.

Order VII, MEMBRANE-WINGS. 249 Bee, honey-cells. 250 Wasp, mud nest. 251 Hornet, paper nest, large nest, $1.00.

PROVINCE VIII. VERTEBRATES.

Fishes.

252 Fish mounted on ebonized wood, lettered to show fins, $1.00; skeleton, $2.00. 253 Jaw of small Shark, .10. 254 Skate's egg, .10.

Frogs, Etc.

255 Frog, mounted, .50; skeleton, $1.00; skull, .20. 256 Skull of toad, .20. 257 Salamander in formalin, .15.

Reptiles.

258 Snake, mounted, $1.00, alcoholic, .25, skeleton, $1.50.

Large Lizard mounted, $2.00; in formalin, .25. 259 Bony scale of Alligator, .10.

260 Turtle mounted for school use, $1.00, skeleton, $3.00. 261 Snapping Turtle, mounted, $3.00.

BIRDS.

263 Mounted Bird lettered, to show external parts, $2.50; skeleton with bones named, $4.00; sternum, .25; sternum with one wing attached, .75; wing rendered flexible, showing bones and feathers, .40.

264 One representative species of fifteen orders of Birds, either a skin fastened to a card, or a head, foot or wing, or all three, $5.00.

MAMMALS.

265 Skeleton size of Rabbit, $5.00. 266 Skin and skull of Rat, Squirrel or other Rodent, .50; incisor teeth, showing continuous growth, .10. 267 Bat mounted, $1.00. 268 Skull of Sheep, $2.00; hoof, .25. 269 Skull of carnivorous mammal, .75.

CATALOGUE OF LIVING ANIMALS

By request of Dr. Charles B. Davenport of Harvard University, I have undertaken to supply the following living animals for the use of schools. Although I shall endeavor to keep a constant supply of these animals in stock during the months named, it is quite probable that the stock of some particular species may become exhausted, therefore teachers and others ordering will greatly oblige me if they will send in their orders as far in advance as possible: when the specimens are wanted and we will send them promptly.

Jars and bottles for aquatic species will be charged extra at about cost prices. 2 oz. bottles at 3 cts. each; 4 oz. 5 cts. Quart jars, 6 cts. Sea water, 10 cts. per gallon.

Fresh water Hydra, all seasons,	.15 each.	$10.00 per 100.
Campanularia, May 1st to Nov. 15.	.08 "	5.00 " "
Tubularia, " " " " "	.08 "	" " "
Sea Anemonies " " " " "	.15 "	10.00 " "
Starfishes, " " " " "	.06 "	5.00 " "
Earth Worms, all the season.	.03 "	2.00 " "
Nereis, May 1st to Nov. 15,	.06 "	5.00 " "
Leaches, all the season,	.05 "	4.00 " "
Clams, " " "	.03 "	2.00 " "
Fresh water clams, Unio etc. all the season	.06 "	5.00 " "
Mussels, all the season,	.04 "	3.00 " "
Limnea, " " "	.03 "	2.00 " "
Limax, small, all the season.	.05 "	4.00 " "
" maxima, in summer,	.15 "	12.00 " "
Garden Snail (Helix hortensis) all season.	.05 "	4.00. " "
Ocean Snail (Natica) all the season.	.05 "	" " "

Bryoza, some species (Marine) May 1st to Nov. 15th, .05 each, 4.00 per 100

Plumatella, May 1st to Nov. 15th,	.05 "	4.00 "	"
Cray Fish, all the season,	.10 "	8.00 "	"
Lobsters, " " "	.25 per lb.		
Sand Fleas, May 1st to Dec. 1st,	.03 "	2.00 "	"
Sow Bugs all the season,	.03 "	2.00 "	"
Barnacles, " " "	.03 "	2.00 "	"
Spiders, April 1st to Dec. 1st,	.04 "	3.00 "	"
Centipedes, all the season,	.04 "	" "	"
Thousand legs " " "	.04 "	3.00 "	"
Lepisma April 1st to Dec. 1st,	.06 "	5.00 "	"
Dragon Fly larvae, all the season,	.05 "	4.00 "	"
Caddice larvae, " " "	.05 "	4.00 "	"
White Ants, April 1st to Dec. 1st,	.03 "	2.00 "	"
Cockroaches, all the year,	.03 "	2.00 "	"
Locusts, April 1st to Nov. 1st,	.03 each	2.00 "	100
Grasshoppers, June 1st to Oct. 15th,	.03 "	2.00 "	"

Squash Bugs, eggs, young and adult, in summer only, .03 each, 2.00 per 100.

Crickets, April 1st to Dec. 1st,	.03 "	2.00 "	"
Water Boatman, all the season,	.03 "	2.50 "	"
" Striders, " " "	.03 "	2.50 "	"

Larvae of Horned Coridalis (helgomite) all the year, .05 each 4.00 per 100.

Giant Water Bugs, all the season,	.06 "	5.00 "	"
Beetles (some species) " " "	.03 "	2.00 "	"
Water Beetles (lucky bugs) all the season,	.03 "	2.50 "	"
Giant Water Beetles, 1 and one half inches long,	.25 each		
House Fly, all the season	.03 each	2.00 per	100
Flesh " April 1st to Dec. 1st,	.03 "	" "	"
Mosquito larvae or of other aquatic Diptera,	.03 "	" "	"
Cocoons of moths, small species, all season	.06 "	5.00 "	"
Promithea Oct. 1st to May 15,	.07 "	6.00 "	"
Cecropia " " " " "	.07 "	6.00 "	"
Luna " " " " "	.10 "	8.00. "	"
Sphinx cocoons, Oct 1st to May 1st.	.04 "	5.00 "	"
Cabbage Butterfly chrysalid Oct. to May 15,	.05 "	4.00 "	"
" " larvae Aug. 1st to Oct. 15	.05 "	" "	"

Asterias butterfly chrysalid. Aug. 1st to Oct. 15. .06 each 5.00 per 100.

Asterias butterfly larvae, July 15 to Oct. 1st .06 each, 5.00 per 100.
Milkweed butterfly chrysalid, Aug. 1 to Oct. 1 .06 " 5.00 " "
" " larvae, July 15 to Oct. 1 .06 " " " "
Honey bee, all the year. .05 " 4.00 " "
Bumble " June 1 to Nov. 1. .05 " " " "
Ants, all the year. .03 " 2.00 " "

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